

PREPRODUCTION INITIATIVE-NELP ISOPROPYL ALCOHOL/CYCLOHEXANE VAPOR DEGREASER TEST PLAN

SITE: NAS NORTH ISLAND

1.0 OBJECTIVE

This test plan describes the process data collection procedure for the isopropyl alcohol (IPA)/ cyclohexane vapor degreaser. The data will be used to determine the system's efficiency, effectiveness, overall performance, and ability to interface successfully with site operations.

2.0 DESCRIPTION

The IPA/cyclohexane vapor degreaser is a dual-tank cleaner/vapor dryer unit for cleaning precision gyroscope bearings. The unit uses environmentally safe cleaning solvents in place of fluorinated hydrocarbons, which are ozone-depleting substances.

3.0 TEST PLAN

This test plan will be used to evaluate the effectiveness of the IPA/cyclohexane vapor degreaser compared to current methods. During the test period, follow these procedures.

1. Operate the IPA/cyclohexane vapor degreaser according to the manufacturer's instructions.
2. Examine the bearings both before and after cleaning with the IPA/cyclohexane vapor degreaser to determine cleaning effectiveness and whether the bearings incurred damage.
3. Inspect the interior of the system for corrosion at least once a week.

3.1 Approach

Quantitative and qualitative data will be acquired by completion of Tables 1 and 2.

3.1.1 Instructions for Completing Table 1

- **Date:** Indicate the dates the IPA/cyclohexane vapor degreaser was used (month and day).
- **Contaminants Removed:** List the contaminants removed.
- **Item Use**
 - **Number of Batches:** Indicate the frequency of usage on a given date (*e.g.*, 1, 2, 3

- times).
- **Quantity:** Indicate the quantity of bearings cleaned/washed on a given date.
- **Consumables Used:** Indicate the type, number of gallons, and cost of consumables used.
- **Consumables Ordered:** Indicate the type, number of gallons, and cost of consumables ordered.
- **Time per Batch:** Indicate the time per unit task (*e.g.*, the cycle time per batch of bearings).
- **Downtime**
 - **Time Period:** Record periods when the unit was not in use.
 - **Reason:** Explain whether downtime was due to repairs, maintenance, workload, or other reasons.
- **Repair Parts Required:** List repair parts required, date, and cost.
- **Qualitative Assessment:** Provide a narrative evaluation of the cleaning abilities of the IPA/cyclohexane vapor degreaser. Briefly discuss:
 - Efficiency of this method (*e.g.*, time and cost savings)
 - Ease of use and the unit's ability to successfully interface with other site operations
 - Overall satisfaction with the cleanliness of the bearings. Inspect the parts for cleanliness and evidence of damage through a wipe test and visual, physical, and mechanical torque examination. Compare results with the cleanliness of bearings washed using other methods.

3.1.2 Instructions for Completing Table 2

- **Date:** Indicate dates the IPA/cyclohexane vapor degreaser was used (month and day). Record on a daily basis.
- **Presence of the Following:** Indicate “yes” or “no” in the appropriate columns. If “yes,” list the specific parts that had evidence of the following deficiencies in the Qualitative Assessment section:
 - Corrosion
 - Rust
 - Spots
 - Films
 - Particulates

- **Damage Due To:** Indicate if the IPA/cyclohexane vapor degreaser caused damage or worsened any existing damage. Indicate if the damage is due to the cleaning, degreasing, or drying process.
- **Roughness and Internal Cleanliness:** Indicate results of hand rotation and torque testing (pass or fail).
- **Interior Corrosion of Unit:** Indicate “yes” or “no” based on visual observation; note the exact location and size (area) of the corrosion.
- **Qualitative Assessment:** Provide specific details for any of the above sections marked “yes.”

4.0 REPORTING

The data entry forms are a concise method of data collection. Forms should be completed on a daily basis. Data will be collected for 1 year. During this time, periodic status reports on the testing will be submitted to NAWCADLKE. The final report will include detailed results and observations, assess the efficiency and cost-effectiveness of the unit, and evaluate its ability to interface with site operations.

Table 1

Date	Contaminants Removed	Item Use		Consumables Used			Consumables Ordered			Time per Batch	Downtime	
		Number of Batches	Quantity	Type	Gallons	Cost	Type	Gallons	Cost		Time Period	Reason

Repair Parts Required

Part	Date	Cost

Qualitative Assessment*:

Provide comments on the effectiveness and efficiency of the unit.

*Attach extra sheet if required.

Table 2

Date	Presence of the Following					Damage Due To			Roughness and Internal Cleanliness		Interior Corrosion of Unit
	Corrosion	Rust	Spots	Films	Particulates	Cleaning	Degreasing	Drying	Hand Rotation	Torque Testing	

Qualitative Assessment*:
Provide details on areas marked “yes.”

*Attach extra sheet if required.